IN THE CLAIMS

Please replace all prior versions and claim listing with the following claim listing.

Claim listing:

1. (currently amended) An apparatus for enhancing return blood flow in a lower extremity to prevent thrombosis in a human body comprising:

~~an~~ a single impedance component disposed at the proximal end of the lower extremity that when activated impedes return venous blood flow by compressing a vein, thereby increasing venous fill in the lower extremity; ~~and~~

a single compression component disposed at the distal end of the lower extremity that is activated in response to deactivation of said impedance component and compresses at least a portion of the lower extremity such that return venous blood flow is enhanced;

wherein

the leg between the impedance component and the compression component is exposed to allow for maximum calf diameter expansion; and

a controller in communication with the impedance component and the compression component

wherein

the controller controls the operation of the impedance component and the compression component independently based upon a signal from a sensor which is located below the impedance component wherein the signal comprises a maximum change in the diameter of the calf of the lower extremity.

2. (original) The apparatus of claim 1 wherein said impedance component comprises a component selected from the group consisting of cuffs, clamps, pistons, bulbs, and a combination of the foregoing.

3. (original) The apparatus of claim 1 wherein said impedance component is activated via mechanical, pneumatic, electrical, or electronic systems.

4. (original) The apparatus of claim 1 wherein said compression component comprises a component selected from the group consisting of cuffs, clamps, pistons, bulbs, sequential compression segments and a combination of the foregoing.

5. (original) The apparatus of claim 1 wherein said compression component is activated via mechanical, pneumatic, electrical, or electronic systems.

6. (original) The apparatus of claim 1 wherein said compression component is disposed at a portion of the lower extremity comprising a location selected from the group consisting of the foot, the ankle, the calf, the lower thigh and a combination of the foregoing.

7. (original) The apparatus of claim 1 wherein said impedance component is activated until blood volume in the lower extremity is maximized, and said compression component is activated in response to deactivation of said impedance component.

8. (original) The apparatus of claim 1 wherein said impedance component is activated to exert a pressure of between approximately 20 and approximately 60 mm Hg.

9. (original) The apparatus of claim 8 wherein said impedance component is activated to exert pressure of between approximately 30 and approximately 40 mm Hg.

10. (original) The apparatus of claim 9 wherein said impedance component is activated to exert a maximum pressure of about 30 mm Hg.

11. (original) The apparatus of claim 1 wherein said compression component is activated to exert a pressure of over about 40 mm Hg.

12. (original) The apparatus of claim 1 further comprising a control unit to control the activation and deactivation of said impedance component and of said compression component.

13. (cancelled)

14. (currently amended) The apparatus of claim ~~13~~ 1 wherein the sensor unit is selected from the group consisting of a strain-gauge plethysmography unit, a pressure transducer, an impedance plethysmography unit and a photoplethysmography unit.

15. (currently amended) An apparatus for enhancing return blood flow in a lower extremity to prevent thrombosis in a human body comprising:

means for impeding venous flow in the femoral vein at the proximal end of the lower extremity;

means for compressing at least a portion of the distal end of the lower extremity wherein the leg between the impedance component and the compression component is exposed for maximum calf diameter expansion; and

a controller for controlling operation of the means for impeding venous flow and the means for compressing at least a portion of the distal end of the lower extremity by sequentially activating the means for impeding venous flow, deactivating the means for impeding venous flow, and activating the means for compressing at least a portion of the distal end of the lower extremity in response to deactivation of means for impeding venous flow, whereby return venous blood flow is enhanced.

16. (original) The apparatus of claim 15, further comprising a sensor for determining the maximal venous fill and providing an input to the controller.

17. (currently amended) A method for enhancing return blood flow in a lower extremity to prevent thrombosis comprising the steps of:

a) impeding the venous blood flow at the proximal end of the lower extremity for a defined period of time thereby increasing venous fill in the lower extremity;

b) measuring with a sensor a signal comprising a change in the diameter of the calf as a measure of maximum venous blood volume increase;

c) communicating the signal to a controller;

d) independently releasing an impedance component in response to the signal and increasing compression by a compression component in response to the signal from the controller; and

repeating steps a)-d) at a rate defined by the user.

~~compressing a portion of the distal end of the lower extremity, such compression being initiated in a relationship to release of impedance of the venous blood flow at the proximal end of the lower extremity.~~

18. (original) The method of claim 17, further comprising the step of determining a maximal venous fill in response to impeding the venous blood flow.

19. (original) The method of claim 17, wherein compressing a portion of the distal end of the lower extremity is initiated before, simultaneous with, or after release of, impedance of the venous blood flow at the proximal end of the lower extremity.

20. (original) The method of claim 17 wherein the defined period of time comprises maintenance of a maximal venous fill for a defined period of time.

21. (new) The apparatus of claim 1 wherein the compression component is formable about the lower calf and foot to maximize venous return when the compression component is activated.

22. (new) The apparatus of claim 1 wherein the sensor is located to record maximum volume change.

23. (new) The apparatus of claim 1 wherein the sensor is located in the compression component.

24. (new) The apparatus of claim 1 wherein the compression component is shapeable about the lower calf and foot to enhance venous return when the compression component is compressed.

25 (new) The apparatus of claim 1 wherein the sensor is located within the compression component.

26. (new) The apparatus of claim 1 wherein the sensor is located calf-high.